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USSR Report

ENERGY

No. 68

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ELECTRIC POWER

ECONOMIC PLANNING IN ELECTRICAL EQUIPMENT INDUSTRY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 4, Apr 81 pp 3-11

/Article by USSR Minister of the Electrical Equipment Industry A. I. Mayorets: "Mathematical Economics Methods in Planning: The Electrical Equipment Industry"/

/Text/ The electrical equipment industry with respect to the production potential holds one of the leading places among machine building ministries. Its output in many ways governs scientific and technical progress in other sectors.

In the past 15 years the production volume of electrical items in the sector increased threefold, labor productivity--2.3-fold, the profit--nearly 11-fold.

The main task of the sector for the 11th Five-Year Plan consists in the more complete meeting of the demands of all the sectors of the national economy for electrical products with the efficient use of material, manpower and financial resources.

The improvement of sectorial planning and its optimization on the basis of the use of mathematical economics methods and computer equipment should play an important role in the accomplishment of this diverse task. The particular importance of this direction was emphasized at the 24th and 25th CPSU Congresses and in the July (1979) decree of the CPSU Central Committee and the USSR Council of Ministers on the improvement of the economic mechanism. Much attention is devoted to the increase of the role and quality of planning in the Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990.

The most developed area of the optimization of planning decisions is the optimization of the long-range planning of the development, specialization and location of works on the scale of the sector.

The First Stage

The electrical equipment industry was one of the first in machine building to start using mathematical economics methods and computers. Since 1963 calculations for determining the optimum plans of the development and distribution of individual sectors and subsectors of electrical engineering have been made under the procedural guidance and with the participation of the Institute of Economics and the Organization of Industrial Production (IEiOPP) of the Siberian Department of the Academy of

Sciences, as well as the Laboratory of Mathematical Economics Research (LEMI) of Novosibirsk University. The first such calculation was made for the cable industry for 1966-1970. Similar calculations during 1964-1965 were made by the Main Computer Center of USSR Gosplan for the electric light bulb industry.

During 1967-1973 problems on the optimization of long-range plans (for 1971-1975) in the cable industry, transformer making, the production of electric motors with a rating up to 100 kW, the production of light sources and illuminating equipment and others were raised and solved by the Central Scientific Research Institute of Information and Technical and Economic Research in Electrical Engineering (Informelektro) and other planning and scientific research organizations jointly with the Institute of Economics and the Organization of Industrial Production of the Siberian Department of the USSR Academy of Sciences, the Laboratory of Mathematical Economics Research of Novosibirsk State University and the Main Computer Center of USSR Gosplan. The results of the scientific calculations were regarded as versions of the preplan critical analyses of the Ninth Five-Year Plan and were taken into account in the approved plan of the sector for 1971-1975. This was one of the first practical results of the use of computer equipment in sectorial planning. Moreover, in the sector this was the first attempt to process raw data for models, when new procedural principles had to be developed and approaches to the obtaining of the necessary set of indicators had to be sought. By late 1973 nearly all the sectors and works of the electrical equipment industry were covered by calculations of the optimum plans. The experience of elaborating models in the different sectors of electrical engineering by that time had shown that in principle the use of standard models with allowance made in each specific case for the specific nature of production, the peculiarities of the stages of its development and the set of factors in question is possible.

Thus, the tasks for the cable industry and transformer making were notable for interesting formulations. The specific nature of these sectors is governed by the fact that the development, specialization and location of enterprises essentially depend on their relations with the consumers of the finished product and the suppliers of materials. In both sectors the calculations were made in several stages. The delivery of rolled ferrous metal products, transformer steel and coil wire was taken into account in the more difficult task for transformer making. The optimum plan of the development and specialization of the production of transformers and complete transformer substations up to 1980, as well as the plans of the shipments of finished products to consumers and the delivery of materials to transformer plants were established as a result of the accomplishment of the task.

When formulating the task for the cable industry it was taken into account that the technological process of converting copper and aluminum for the current-carrying cores of cable items includes the obtaining of a copper or aluminum bar at plants of nonferrous metallurgy, the rolling of this bar at the rolling mills of cable plants for obtaining a cable (or by continuous rolling or casting at special plants), the obtaining of wire of different diameters from the cable by drawing at the cable plants. Thus, the transportation factor was present in the task three times: the transportation of the bar from the plants of nonferrous metallurgy to the cable plants which have rolling mills; the transportation of the cable from the plants of continuous casting and rolling to all the cable plants; the transportation of finished cable items to the consumer. As a result of the achievement of the task it was possible to determine up to 1980 the level of development and specialization of the rolling mills of the cable industry and the production of cable at the plants of continuous casting and rolling, to solve the questions of the development, specialization and location of cable plants, to plan efficient ties between the plants of nonferrous metallurgy and the cable industry through all the technological conversions in terms of the accepted products list, as well as to attach the suppliers of finished cable items to their consumers.

When drafting the optimum long-range plan of the development, specialization and location of the production of low voltage induction motors the specific nature of the development of the subsector was taken into account. A new uniform series of 4A electric motors, which have substantially improved technical and economic characteristics, was developed here in 1969-1971. In this connection it was suggested that the maximum national economic efficiency could be achieved by the rapid replacement of old electric motors by new ones. The calculations of the optimum plan were made according to two criteria:

for the maximum output of motors of the new series on the condition of a total output of items of both the old and the new series in an amount equal to the national economic demand and with limited capital investments;

for the minimum capital investments in the sector with the meeting of the total national economic demand and with a set rate of the replacement of motors of the old series by new ones.

The analysis of the obtained versions made it possible to find a solution which ensured an adequately high level of the output of motors of the new series and kept within the real capital investments. The calculations showed that the impact from the use of electric motors of the 4A series in the future would cover the additional capital investments in the organization of their production and the higher current expenditures of the first years of their series production.

The start of the work on the optimization of intersectorial works in the electrical equipment industry also dates to the period before 1974. The existing enterprises of many sectors were designed and constructed with a full set of all the works: the main, the set-up and the ancillary works. Under these conditions the production of items of intersectorial use was extremely disunited; their production volume at the enterprises of the sector was determined mainly by their own demand. The shops and sections for the production of these items were weak and were inadequately supplied with highly productive equipment. The proportion of manual operations at some enterprises came to 60 percent. Moreover, the annual increase of the basic output of the electrical equipment industry led the increase of items of intersectorial use. The proportion of deliveries in accordance with intersectorial cooperation subsequently did not increase. Hence it is evident that the problem of intersectorial works in the electrical equipment industry rested on the creation of specialized enterprises equipped with the latest technology for the production of cast blanks, welded metal components, tools and equipment accessories, fasteners and other items. These new enterprises are closely connected with the geographic location of the consuming plants, since the transportation costs for delivering finished items of intersectorial use amount to 12 percent of the production outlays.

The first attempt to use mathematical economics methods in the long-range planning of intersectorial works was made in 1972-1974. The optimum plans on the development and location up to 1990 of new specialized enterprises for the production of cast blanks, welded metal components, tools and equipment accessories were the result. Although these were only the first formulations, which entailed many difficulties, the obtained results showed the sufficiently great efficiency of the specialization of intersectorial works.

By examining the work done, it is possible to come to the conclusion that by 1974 the first stage of the adoption of mathematical economics methods in the long-range planning of the electrical equipment industry had been completed. It is possible to characterize it as the stage of the extensive testing of new methods of planning in electrical engineering and the subsectors of the sector. It was also the stage of the two-sided adaptation of collectives, some of which prepared the raw data for optimization calculations and then used their results, while others elaborated models and methods which reflect the processes and interrelations existing in the sector. The gained experience was generalized in "Metodika razrabotki optimal'nykh perspektivnykh planov razvitiya, spetsializatsii i razmeshcheniya proizvodstva v elektrotekhnicheskoy promyshlennosti" /The Method of Drafting Optimum Long-Range Plans of the Development, Specialization and Location of Production in the Electrical Equipment Industry/.[1] It reflected the standard models, which found application in various sectors, and the main elaborations which characterize the features of the preparation for these models of the raw data and the use of the obtained results.

It is possible to consider as the main result of the first stage of the adoption of optimum calculations in long-range planning in the sector the fact that they went beyond scientific research. In the technology and practice of sectorial planning and designing this transition is connected with the elaboration and testing of a number of new concepts and indicators. Such expressions as uniform standard representative, standard unit capacity (the minimum permissible production volume), the optimum dimensional series of production capacities, the versions of the development and specialization of production and the optimality test became a part of the terminology of the workers of the ministry and the drafters of the plans. Uniform procedural approaches to the elaboration of a classification of items and the selection of standard representatives, to the formulation of versions of the development and specialization of production on the basis of standard unit capacities and to the methods of calculating the main technical and economic indicators necessary when constructing models were elaborated and adopted.

Along with the change of the qualitative apparatus the adoption of optimization calculations promoted the improvement of the technology of planning by means of the changeover to automated control systems in the sector. The work on the development of the Elektro Sectorial Automated Control System, one of the subsystems of which is "The Long-Range Development of the Sector," was begun in the electrical equipment industry in the late 1960's.

The first stage of the adoption of the new methods in the practice of sectorial planning, of course, was not able to pass by without certain difficulties. This concerned both the raw data, the cycle of the processing of which was unjustifiedly long, and the degree of utilization of the obtained optimization calculations, which by that time had not yet become the basis of sectorial planning. Insufficient attention was devoted to the work on the optimization of long-range planning on the part of the management of the corresponding scientific research and design institutes; not all the developers equally coped with the demands being made on the raw data, especially in the area of the formation of a great number of versions of the development and specialization of enterprises.

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[1] Moscow, "Informelektro", 1974.

Toward a Uniform Set of Models

The next stage of the assimilation and adoption of mathematical economics methods, which began in 1974-1975, is characterized by the coverage of all the sectors and subsectors of the electrical equipment industry. It is also characterized by qualitatively new approaches in the area of the improvement of the models themselves, their unification and the creation of a system of models of long-range planning in the sector. The preparation of the raw data improved.

Procedural analyses on the improvement of the models being used are constantly being made on the basis of the analysis of the gained experience of using mathematical economics models in the electrical equipment industry. The work on covering the entire electrical equipment industry with a set of models was an important step in this direction. A special task force was set up within the ministry to coordinate the performance of the work on this theme.

The Institute of Economics and the Organization of Industrial Production of the Siberian Department of the USSR Academy of Sciences with the participation of specialists of the ministry and a number of institutes of the sector in 1976 prepared "The Main Procedural Principles of the Drafting of the Long-Range Plan of the Development and Distribution of Production in the Electrical Equipment Industry on the Basis of a System of Models of Multilevel Optimization." In them our sector is represented by models which cover four levels of planning: the national economic--the electrical equipment sector as a whole--the sector (all-union industrial association)--territorial production electrical equipment complexes.

A two-level system, which includes the electrical equipment industry as a whole and the individual sectors (all-union industrial associations), has now been approved. In 1976-1978 experimental and then actual calculations of the optimum plan of the sector up to 1985 and 1990 according to the data of sectorial design and scientific research institutes were made in accordance with this system at the Institute of Economics of the Siberian Department of the USSR Academy of Sciences.

In recent years research in the modeling of the sectorial system has also been conducted at the All-Union Scientific Research Institute of Information and Technical and Economic Research in Electrical Engineering (Informelektro). The first series of calculations on obtaining the optimum general sectorial plan for 1985-1990 according to an aggregate list, as well as an experimental check of the entire system of models have been made.

The multilevel approach to modeling in principle agrees well with the existing process of planning and management in the electrical equipment industry. The systems of models, which are being developed at institutes, now are notable for the means of their construction and the methods of coordinating the data with the levels. In the future this experience will undoubtedly stimulate the uniting of efforts and the creation of a unified intercoordinated set of models which cover not only the sectorial, but also the national economic (through the parameters of the intersectorial balance) and the territorial levels (through the models of territorial production complexes).

The use of the models of the calculation of the optimum dimensional series of production capacities, which were developed at Informelektro, is one of the directions of the qualitative improvement of the preparation of data. A number of possible amounts of the specialized production of a specific item, each of which ensures the most efficient use under the given conditions of the production equipment, areas and other resources, are found by means of them. The task consists in the selection of the best values of the production capacities which are being renovated, expanded and newly created.

The developed computer programs made it possible to make under the conditions of industrial operation systematic calculations of the dimensional series of the optimum capacities in accordance with a sufficiently broad list of the majority of sectors of the electrical equipment industry. The results of the calculations were used extensively when elaborating the versions of the development of enterprises and the technical and economic substantiations of their renovation, expansion or new construction.

In recent times at a number of institutes of the sector another of the directions of the use of mathematical economics methods has been actively developed--the determination on their basis of the long-range demand of the national economy for various types of electrical products. This direction is also connected with the use of mathematical economics models and the apparatus of production functions.

The process of introducing mathematical economics methods in the practice of sectorial planning is closely connected with the problems of developing sectorial automated control systems and automated systems of planning estimates. Therefore, the sphere of application of the indicated methods is steadily increasing. The reorganization of the management of the sector, which is being carried out in the electrical equipment industry, and the creation of production associations and all-union industrial associations are already yielding a significant economic impact and are facing us with the tasks of the further improvement of the sectorial structure. In this connection optimum long-range planning should not lag behind the demands of the technical, economic and social development of the sector. However, without having for the calculation of long-range plans a truly automated set of models, which would combine the gathering and processing of data and the output of results according to the accepted forms of the national economic plans, we still are lagging behind the needs of planning and cannot completely realize the economic impact which mathematical economics methods can provide. Therefore the main efforts of the design and scientific research institutes of the sector are now being aimed at the quickest possible development of an automated set of models, which covers the entire electrical equipment industry and operates within the subsystems of the sectorial automated control system.

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FUELS

COAL INDUSTRY DEVELOPMENT REVIEWED

Moscow EKONOMICHESKAYA GAZETA in Russian No 15, Apr 81 p 2

[Article: "The Development of the Coal Industry"]

[Text] The coal industry is an integral part of the fuel and power complex of the country. Thermal electric power stations and enterprises of ferrous and nonferrous metallurgy are the main consumers of coal. They receive nearly 65 percent of the solid fuel supplied to the national economy. A significant amount of the high grade coal is supplied for the needs of the population and municipal services. Coal and shales also serve as a technological raw material for the production of many products of the chemical industry.

The proportion of coal in the total production volume of all types of fuel (in conventional terms) is 25 percent. In conformity with the Main Directions, which were approved by the 26th CPSU Congress, the growth rate of coal production is being increased. In 1985 it has to be increased to 770-800 million tons, that is, it has to be increased in 5 years by 54-84 million tons. The means to do this is the introduction of highly productive equipment and technology at coal enterprises, the improvement of the use of production capacities, the shortening of the period of the construction and modernization of mines and pits.

At the Pits and in the Mines

In 1980 716.4 million tons of coal were mined in the Soviet Union. The enterprises of the USSR Ministry of the Coal Industry provided more than 709 million tons of them. During 1976-1980 they yielded in all 3,559,000,000 tons of coal--242 million tons more than during the preceding five-year plan.

The entire increase was obtained by means of the advanced open-cut method of working coal deposits. Thus, at Ekibastuz the production increased by 20.7 million tons, or 45 percent. At the Kansk-Achinsk basin it increased by 26 percent.

Considerable work was done on the retooling of enterprises. At present in the mines more than 1,300 breakage faces are equipped with highly productive mechanized coal units. They yield more than 67 percent of the coal obtained by the underground method. The amount of mine transport equipment of a large unit capacity in the pits has increased.

The plants of coal machine building have increased the output of mechanized supports and conveyor belts by more than 20 percent and of tunneling cutter-loaders by 13 percent.

The mine construction workers have achieved definite gains. Very large mines, including the Raspadskaya in the Kuzbass with a capacity of 7.5 million tons of coal a year, the Vorgashorskaya in the Pechora basin (4.5 million tons), the Mine imeni Stakhanov in the Donbass and the Tentekskaya in Karaganda (4 million tons each), have been put into operation. The annual capacity of the Ekibastuz Bogatyr' open pit has been increased to 50 million tons. The Donetsk Zhdanovskaya-Kapital'naya No 1 Mine with a capacity of 2.1 million tons of coal was built a year earlier than the standard period.

But it was not possible to achieve all the outlined gains. In the past few years the coal industry has worked with a great strain and has not coped with the assignments on the increase of coal production and the growth of labor productivity. The plan on the placement of new capacities into operation and the construction of apartment houses and social and general facilities was not implemented in full.

During the 11th Five-Year Plan the Donbass is maintaining first place among all basins in the volume of fuel production. The main thing here is to expedite the modernization of the available mines by means of the renovation of operating enterprises and the expansion of mining in beds with a sharp dip and with difficult mining geological conditions.

During the 11th Five-Year Plan, as is stipulated by the decisions of the 26th party congress, the mining of coal by the efficient open-cut method is being developed at a leading rate. Its proportion in the total production volume will increase in 1985 to 39-40 percent.

With allowance made for the demands of the new large thermal electric power stations, which are being built on the basis of inexpensive fuel, primary attention is being devoted to the further increase of the capacities at the Ekibastuz, Kansk-Achinsk and Southern Yakut fuel and power complexes. At Ekibastuz the construction of the first and second sections of the Vostochnyy open pit is being carried out at the same time as the expansion of operating enterprises. The large Berezovskiy open pit in the Kansk-Achinsk basin should be put into operation. The construction of the Neryungrinskiy open pit (13 million tons a year) in the Southern Yakut basin has to be completed.

As a whole the proportion of the eastern regions of the country in the all-union production of coal in 1985 will exceed 60 percent.

The policy has been adopted of equipping the open pits with large-capacity excavators and the pit transport with modern towing units and 136-ton dump cars and of introducing extensively conveyor transportation with a productivity of 10,500 m^3 of rock body an hour, heavy dump trucks and coal trailer trucks.

Machine building plants are called upon to help the workers of the coal industry in solving this problem. They should increase the delivery of continuous equipment of large unit capacity.

Hard coal in our country is mined in seven union republics, while shales are mined in Estonia. The shaft method is used at the majority of deposits. As a rule, the constant deepening of the mining, which is accompanied by the complication of the mining geological conditions, occurs with the underground method.

The depth of the mining in the mines every 5 years increases on the average by 50 m. The complete mechanization and automation of production processes are making it possible to mollify these adverse factors. It is envisaged in 1985 to increase the level of the complete mechanization of operations at the longwalls in gently sloping and inclined seams to 78 percent and in steep seams to 20 percent. Automated means of excavating the coal without the constant presence of people at the breakage faces are being developed.

Assignments of 1981 for the Main Basins
(millions of tons)

Donetsk	213
Kuznetsk	149
Ekibastuz	72
Karaganda	49
Kansk-Achinsk	36
Vostsibugol'	37
Pechora	29
Moscow	23
Estonslanets	30

In the Kuzbass, where the production of fuel obtained by the open-cut method is being increased, it is necessary to renovate the mines which extract coal from seams with a steep incline in Prokop'yevsko-Kiselevskiy Rayon. The program of the development of the Karaganda basin includes the retooling of the existing mines and the development of the Borlinskoye deposit, where favorable conditions exist for the open-cut mining of coal. The Angren basin of Uzbekistan will also provide more fuel for thermal electric power stations due to this method.

The hydraulic mining of coal will increase from 8.9 million tons in 1980 to 11 million tons in 1985. It will be carried out primarily in seams with difficult mining geological conditions in the Kuzbass, as well as in the Donbass.

Increase the Quality of Fuel

An important task of the workers of the sector is to increase the quality of the coal being delivered to consumers. It should be said that the average ash content of the fuel being shipped by the enterprises of the USSR Ministry of the Coal Industry increased from 20.2 percent in 1975 to 21.6 percent in 1980. But the specific consumption of fuel for the generation of a kilowatt of electric power and the smelting of a ton of pig iron in many ways depends on the quality of the products of the sector.

A decisive factor of the improvement of the coal being used in the national economy is its purification. This is confirmed by experience. Owing precisely to purification the content of ash in coal concentrate in the past decade has remained practically stable (coke concentrate--8.1 percent, power coal concentrate--13.8-14.2 percent).

At the purification mills in 1985 it is planned to process 385 million tons of coal--13 percent more than in 1980. The improvement of the quality of the products being sold owing to the development of purification will make it possible to reduce substantially the losses of coal in the ground and in the banks. As estimates show, the increase of the capacity of purification mills will make it possible at operating mines, by means of the more complete stripping of the seams of coal, which today are considered substandard, to obtain additional tens of millions of tons of fuel. One-half to two-fifths as many expenditures are required for the expansion of the capacities of mills than for the construction of coal mining enterprises.

The more strictly the technology at the breakage faces is observed, the less coal remains in the ground. For the present, for example, in Prokop'yevskiy-Kiselevskiy Rayon of the Kuzbass much fuel is still not being brought to the surface and is being irretrievably lost.

The Example of the Leaders of the Competition

The role of socialist competition in solving the problems of the economic and social development of the country is emphasized in the decree of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee, "On the All-Union Socialist Competition for the Successful Fulfillment and Exceeding of the Assignments of the 11th Five-Year Plan." The army of 2 million Soviet miners always was and remains in the forefront of the national competition.

Last year the collectives of 28 enterprises of the coal industry, which were awarded Challenge Red Banners of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee, made outstanding labor gains. The 1,000-ton brigades, which mine in a day 1,000 or more tons of coal, are displaying examples of highly productive labor. At present 450 brigades are working with such a workload.

In all, 100 brigades are producing 500,000 or more tons of coal each a year. Nine collectives in 1980 mined 1 millions tons of coal each. Among them in the Donetsk basin are the brigades of V. G. Murzenko, M. P. Chikh, N. N. Skrypnik, A. D. Polishchuk and V. I. Ignat'yev; in the Kuzbass--the brigades of P. I. Frolov and M. N. Reshetnikov; in Karaganda--the brigade of A. G. Solomatin; in Vorkuta--the brigade of P. A. Yermakov. More than 480 mine sinking brigades are working by high-speed methods.

However, the great potentials of socialist competition in the coal industry are not being fully utilized. The movement of 1,000-ton brigades has not received adequate development. One of the main reasons is that economic managers are not everywhere creating favorable conditions for highly productive labor. It is necessary to organize better the dissemination of advanced production know-how.

In all the sectors of the national economy there are large reserves for saving fuel and energy resources, including coal. To this day during transportation alone its losses come to 3-4 percent. Given the present production volume an enormous amount of coal is disappearing from the cars on the way to consumers. The workers of the mines and open pits are first of all obliged to see to the reduction of such losses. It is a matter of packing the fuel which has been loaded into the gondolas and of coating its surface with a special water-oil emulsion. Experience attests that the use of this method cuts in half the losses of coal from wind erosion. The railroad workers should ensure the delivery of serviceable rolling stock for the shipping of fuel.

A considerable saving is being achieved owing to the supply and use of coal in graded form. The efficiency of the burning of graded fuel increases by 15-20 percent as compared with ordinary coal.

The workers of the coal industry have begun the implementation of the program of development of the sector in 1981-1985. The production of coal this year (according to the plan with the additional assignment) will come to 738 million tons.

At the purification mills of the USSR Ministry of the Coal Industry 12.5 million tons more fuel will be processed than last year. It is planned to obtain 287.4 million tons of fuel from the completely mechanized breakage faces with an increase of 15.7 million tons as against 1980.

The enterprises of the USSR Ministry of the Coal Industry produced about 3 million tons of fuel in excess of the plan of the first quarter. But the additional assignment set for this period remained unfulfilled.

The plan of the deliveries of coking coal was fulfilled. The open-pit mining of coal increased by 2.3 million tons as against the first quarter of 1980.

The Donetskugol', Makeyevugol', Krasnoarmeyskugol', Sverdlovantratsit, Pavlogradugol', Vostsibugol', Krasnoyarskugol', Primorskugol' and a number of other production associations worked well in January-March, having completely fulfilled the assignment on coal deliveries to consumers. At the same the Kuzbassugol', Voroshilovgradugol', Krasnodonugol' and several other production associations fell behind in the fulfillment of the assignments.

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UKRAINIAN COAL INDUSTRY DEVELOPMENT

Kiev PRAVDA UKRAINY in Russian 31 May 81 p 2

/Article by Ukrainian SSR Minister of the Coal Industry N. Grin'ko: "Toward New Horizons"/

/Text/ In a conversation with executives of the Ukrainian SSR while in Kiev for the festivities on the occasion of the opening of the Memorial Complex, Comrade L. I. Brezhnev emphasized the importance of and need for the improvement of the work of the coal industry. His valuable instructions will help the republic miners to take effective steps to eliminate the shortcomings and to utilize more completely the available reserves and opportunities for the stabilization of the work of all associations and mines.

Since the beginning of this year 600,000 tons of coal have been mined in excess of the plan in the Ukraine. However, there is no reason to be content, especially as in May the rate of mining decreased appreciably. In all, 9 associations and 98 mines failed to provide the national economy with about 3 million tons of fuel. The fact that 35 mines have not fulfilled the plan for 3-4 years in a row is cause for particular alarm.

What is the reason? The analysis shows that the unstable operation of a number of associations and mines lies primarily in the inadequate attention to the production of the breakage front, in the unsatisfactory use of the available advance line and mining equipment and in understaffing. Labor and production discipline has been relaxed at the lagging enterprises.

But nearly all of them are under the same production conditions and have leading collectives. Practical experience attests that wherever the administration and the party and trade union organizations actively engage in retooling and the introduction of what is new and advanced, do not forget about the selection and placement of personnel and devote the proper attention to organizing and political educational work, success is ensured.

It is possible to cite many examples of the fruitful, productive work of collectives of miners. The experience of the Pavlogradugol' Association merits a favorable rating. It was among the first to fulfill the 10th Five-Year Plan ahead of time; in addition to the program the country received more than 1 million tons of fuel. This year the Pavlograd miners have entered more than 150,000 tons of coal in their above-plan account.

In the association the technical policy is being skillfully implemented, the mining management is in excellent condition. Many managers of associations and mines of the Donbass--the oldest coal basin--should study this from the Pavlograd mines. Especially noticeable changes took place in the Pavlogradugol' Association during the years of the 10th Five-Year Plan and first of all in the reequipment of the mines, the introduction of the latest technology and the improvement of the forms and methods of socialist competition. At the coal enterprises here 96 percent of the permanent installations have been automated, the level of mining with units has increased to 94 percent, and the level of the tunneling of drifts with cutter-loaders has also increased.

It is noteworthy that the managers and the party and trade union organizations of the mines of the association are displaying great concern about creating the proper conditions for the labor and relaxation of the miners. A dispensary accommodating 300 people has been built on a picturesque site on the bank of the Samara River, everywhere the industrial sites and the administrative and personal combines have been put in order, all the mines have underground hot food centers, exercise rooms, radiation therapy rooms and inhalation rooms. The surfaces of the mines are rightfully recognized as the best in the ministry.

The favorable experience in the management of enterprises and in everyday organizing and political work, which is aimed at increasing labor productivity and the growth of the extraction of coal at the Donetskugol', Torezantratsit, Makeyevugol', Krasnoarmeyskugol', Oktyabr'ugol', Sverdlovantratsit and other associations, which this year have already mined about 1.8 million tons of coal in excess of the plan, merits attention. In the sector 128 collectives of mines and open pits are working smoothly.

The longwalls, at which V. Ya. Kolesnikov, V. G. Murzenko, N. N. Skrypnik and A. D. Ignat'yev, recognized experts of the large-scale coal industry, are working, have become true laboratories of technical progress, schools of great occupational skill. The teams of miners headed by them have reached the 1 million ton level in the annual production of fuel. In the sector it is planned by the end of this year to increase the number of brigades with a workload at the longwall of 1,000 or more tons a day to 125, and in thin seams with a workload at the longwall of 500-700 tons to 200.

Today a special role is being assigned to socialist competition under the mottos: "Not One Laggard Alongside!", "Give the Country More Coal, of Better Quality, With Fewer Expenditures!" Such a noteworthy trait of the miner as collectivism and the interest of production leaders in the success of those working side by side with them is being displayed more and more in the labor competition. The patronage of the leaders over the laggards has assumed a broad scope. Already 350 brigades and sections have lent a hand to those who have not been coping with the plan. And here is the result: this year the leaders have already removed from among the laggards 276 collectives under patronage.

The movement of the 1,000-ton brigades, the number of which has reached 15, is a subject of special concern of the collegium of the ministry and the managers of associations and mines. The socialist competition of the extraction collectives, which work in thin seams, for the achievement of an average daily workload at the breakage face [illegible] up to 500 tons of coal and more, is being expanded.

In this connection special annual plans of the introduction of advanced know-how have been drafted and are being implemented. In them it is indicated what specific innovation is to be studied, the place and date of introduction are specified in order to ensure the utmost development of enterprises and the reproduction of the breakage front and to use the technical potential more effectively.

In speaking about the conditions of the working of coal seams, which are becoming more complicated, Comrade V. V. Shcherbitskiy said at a session of the general meeting of the Ukrainian SSR Academy of Sciences that the coal industry, perhaps as no other sector, needs the acceleration of scientific and technical progress.

During the 10th Five-Year Plan comprehensive programs of the development of new equipment for the breakage faces of thin gently sloping seams and seams of steep bedding and the reequipment of the longwalls with individual means of strengthening and controlling the hanging walls were drafted for the first time. The new KM-103 and KD-80 mechanized units, the development of the series production of which will make it possible to increase the level of complete mechanization by the end of the five-year plan to 65 percent and to increase considerably the quality of the coal being mined, have already been produced and are undergoing tests. The IKM-88 unit for thin seams has been readied for series production. The BShU driller auger unit for the unattended extraction of fuel and other mining equipment are successfully undergoing mine tests.

Here much depends on the machine builders. We understand all the complexity of the changeover of the enterprises of coal machine building to new products. But the plant workers should also reorganize more rapidly and take into account that progress in the coal industry is impossible without retooling. The Druzhkovka Plant, for example, back in 1979 should have turned over the KD-80 unit of the first type size for industrial tests, but delivered it only this year. Such cases, and there are many of them at other plants as well, greatly worry us.

The work on the mechanization of the drilling faces is also continuing. However, the available cutter-loaders do not have sufficient horsepower and are not able to break up hard rock. It is necessary not only to improve the old arsenal of the face and to increase its durability and wearing qualities, but also to develop fundamentally new means of breaking up rock. The academic institutes of the republic could solve this problem. A qualitatively new approach to the solution of a number of other most important problems--the mining of coal in deep horizons, the control of outbursts and the decrease of the yield of rock from the mine--is also necessary.

One of the reserves of the intensification of coal production is the elimination of manual labor, the proportion of which in the sector is still large. With the used mining technology, which involves many operations, especially great importance is being attached to small-scale mechanization, but it is, as a rule, bulky and inconvenient to use.

We are counting on a considerable increase of fuel production due to the assimilation of the capacities of the mines which were turned over during the 10th Five-Year Plan. At present plans of the "normalization" of operating coal enterprises are being drawn up. Major plans also have to be implemented in capital construction and the modernization of available mines. During the new five-year plan it is planned to build and modernize a number of mines with a total capacity of

15 million tons of coal a year. The amount of construction and installation during the 11th Five-Year Plan will increase by more than 1.5-fold as against the 10th Five-Year Plan. About 90 shafts must be sunk, 285 horizons must be put into operation to replace the capacities being retired.

The expenditures on the implementation of a comprehensive plan of the improvement of working conditions and on health and sanitation measures at enterprises of the ministry, which during the last five-year plan came to 450 million rubles, during the current five-year plan will be increased 1.5-fold. The miners will receive considerably more apartments, children's institutions, schools, 23 hospitals and 34 dispensaries.

Of course, the implementation of such a vast program will require the attraction of additional manpower resources. Komsomol, by continuing its traditional patronage over the industrial Donbass, is providing enormous assistance to the coal industry workers in this. And today in the republic there are 10 all-union Komsomol shock construction projects, half of them are mines. About 5,000 boys and girls are attending here the school of occupational skill, friendship and mutual assistance.

During the 11th Five-Year Plan it is envisaged to enlist for work in the coal industry from among young people alone about 230,000 workers Graduates of vocational and technical schools will constitute their main body. Incidentally, in all in the sector there are now 100 mining vocational and technical schools, which annually train not less than 10,000 underground specialists. Veterans of mining labor and tutors are first of all called upon to instill in the future miners a sense of occupational pride and dignity.

The workers of the sector realize that great organization, bold initiative and exceptionally precise work are required of them. We should vigorously overcome arising difficulties. Only with such an arrangement of the matter is it possible to successfully cope with the tasks which ensue from the decisions of the 26th CPSU Congress for this year and the 11th Five-Year Plan.

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FUELS

MERITS OF GAS, OIL DEPOSIT MODELING EXPLAINED

Baku VYSHKA in Russian 23 Jun 81 p 2

/Article by Ad. Aliyev, laboratory chief, Institute of Geology, Azerbaydzhan SSR Academy of Sciences: "Modeling Deposits"7

/Text7 A group of staff members from the Mud Volcanism Section of the Azerbaydzhan SSR Academy of Sciences' Institute of Geology, consisting of Candidates of Geological-Mineralogical Sciences Ya. Gadzhiyev, N. Kastryulin and M. Mustafayev and Senior Engineer Yu. Mamedov, recently returned from a trip to Tyumen'. Together with specialists from Glavtyumengeologiya /Main Administration for Geology in the Tyumen' Region7, the Azerbaydzhani scientists discussed the results of a 2-year project for the formulation of a volumetric-graphic model of the Bol'shoy Urengoy gas condensate deposit. The ultimate purpose of this research is to study the geological structure of this territory, ascertain the special features of the arrangement of the gas and oil deposits there, and give scientifically substantiated direction for exploration and prospecting work.

The completed project received high marks from the administration's geologists and scientists from ZapsibNIGNI /West Siberian Scientific Research Institute of Exploration of Geology7.

It should be said that the graphic modeling of gas and oil deposits was begun at the Institute of Geology in the 1970's, on the initiative of Academician A. Yakubov of the Azerbaydzhan SSR Academy of Sciences. Under his leadership, this research was performed on the basis of an economic agreement with Azneft' /State Association of the Azerbaydzhan Petroleum Industry7, Kaspmorneftegazprom [Caspian Sea Petroleum and Gas Industry Association] and Mangyshlakneft' [Mangyshlak Petroleum Association]. Graphic models were produced for gas and oil deposits such as Kyurovdag, Karabagly in the Prikurinskaya gas- and oil-bearing area, Karachukhur, Surakhany on the Apsheronskiy Peninsula, Uzen' and Zhetybay in Mangyshlak and others.

The following fact indicates the practical value of this work. As long ago as 1974. Yu. Yuferov, the chief geologist of Mangyshlakneft', sent a letter to the Azerbaydzhan SSR Academy of Sciences in which he said that, considering the broad possibilities of graphic modeling of gas and oil deposits for the purpose of studying their structure and the exploitation process, he requested that the possibility of increasing the volume of such work be discussed. Thus, for all of the next 7 years, the Mud Volcanism Section has been working for Mangyshlakneft', and the results are being introduced in the deposits that the latter is working. A new economic agreement was recently concluded with this organization for work that will help expose the special features of the geological structure of the territory in southern Mangyshlak in connection with the prospects for finding gas and oil there.

Why do we need modeling, the basis of which is the creation of a volumetric image of a certain section of the Earth's crust; that is, a three-dimensional representation of the shape of an oil deposit, the geometry of an object that is being exploited, and the general geological structure of an area? The fact of the matter is that when searching and prospecting for deposits of useful minerals, as well as when working them, geologists usually use different geological materials in their work: maps, profiles, sections and so on. This "geological documentation" also makes it possible, in the end, to have some idea about the structure of the deep horizons under the earth and the shapes of the occurrences in them of various useful minerals. However, when the subterranean layers have a more complex structure, the methods used in practice to formulate images of the form of useful minerals do not always give a complete, detailed, "visible" representation of a deposit. Actually, the more detail in which the "geography" is compiled and the "exact address" of a deposit of, for example, oil or gas is determined, the more correctly the expensive drilling process will be oriented, although the main thing is we will know how to make use of these "warehouses." Volumetric models help reveal new details of a deposit's structure, thereby facilitating the elimination of errors from previously executed graphic constructs.

For many years now, the scientists at our institute have been working in close and creative collaboration with specialists from Mangyshlakneft'.

And here are the practical results of that work. During the graphic modeling of the Uzen' deposit, the assumption was made that there is present a "nose" that was previously not shown on the maps and that is now another reference point for the geologists in their prospecting. The upper boundary of the productive horizons in the Zhetybay deposit were defined more precisely. New structural maps have been compiled that indicate that this deposit has a block structure and, moreover, that the blocks have different degrees of gas and oil saturation and so forth.

In recent years the institute's ties to Mangyshlakneft' have been strengthened even further. In addition to volumetric graphic modeling, the institute is making important scientific correlations for evaluating the structure of the deeper horizons of the Earth's crust that have been revealed over an extensive area in southern Mangyshlak by only a few isolated wells. The specialists gave the first stage of this work a high rating.

In the future, we are planning to model other gas- and oil-bearing regions in this country.

An increase in the effectiveness of scientific prospecting, the achievement of good final results for our efforts, and the acceleration of their introduction into practice -- this is the assignment given the republic's scientific workers by the 30th CP Azerbaydzhan Congress. Every day and in every way our institute's collective is trying to carry it out.

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FUELS

CONSTRUCTION OF NEW COAL MINE ACCELERATED

Kiev PRAVDA UKRAINY in Russian 12 Jun 81 p 2

/Article by S. Akhmatov, special correspondent, PRAVDA UKRAINY, Western Donets Coal Basin: "How to Speed Up the Start"7

/Text7 Near the village of Mar'ina Roshcha in Petropavlovskiy Rayon, 35 kilometers from Pavlograd, the frameworks of the ground-level structures of the Pavlogradugol' production association's future Mine No 21/22 tower above the ground. This mine is designed for the annual extraction of 1.5 million tons of Grade "G" gas coal, which will be used in the production of coke. The enterprise is being built by the Dneproshakhtstroy combine. It is supposed to be operational by the end of next year, but the builders have decided to shorten this period by 3 months. How?

The Dneproshakhtstroy combine has concentrated large forces on this project. The greatest volume of work is being done by ShSU-4 /possibly Mine Construction Administration7, which is preparing mining levels 140 and 225. ShSU-1 has been assigned several structures on the surface, while ShSU-2 is building the boiler room and ShSU-3 is preparing level 380, which is where the spilled coal and rock from the main shaft will be cleaned.

I asked O.I. Avramenko, the leader of ShSU-4, on what the obligation to have the mine in operation ahead of time is based. Is it only that part of the work is being done by three more administrations?

"No, of course not," he answers. "The concentration of forces is only one of the accelerating factors. There are a lot of them, too. However, the main one is the experience in the rapid construction of mines that we and our comrades have accumulated. This experience has been reduced to a common method and then supplemented."

O.I. Avramenko has the construction of six mines in the Central and Western Donbass /Donets Coal Basin7 to his credit. He has been awarded two Orders of the Red Labor Banner, as well as medals, and has been honored with the USSR State Prize. In the construction of the "Western Donbass No 2" mine, Avramenko was the first in the basin to use the plugging method to suppress water. Builders normally erect many temporary structures for their own needs and use temporary machinery. On Avramenko's initiative, the permanent mine buildings were raised instead of temporary ones and the builders then used them. The entire surface complex of the

"Jubilee No 3" mine was in use for 1 and 1/2 years before the mine itself was in operation. Rock was removed from the mine with permanent charging skips.

The builders had these and other innovations in their arsenal during the construction of the new coal enterprise. However, they were added to this arsenal with improvements. For example, the work was speeded up noticeably because of the driving of the workings with combines, almost totally without the use of explosives. The driving rate was increased by 40 percent. For the first time in the Western and Central Donbass, all the chambers and capital galleries, except for the shafts, were executed in [illegible] with packing of the timbered space. This made it possible to eliminate the need for 10,000 cubic meters of concrete in the mine, reduce the labor expenses, and avoid deformation of the shaft lining. The hip-type shaft lining used by the builders improved the galleries' stability noticeably. Even heavy flooding of different sections does not affect them.

Having reduced the erection of temporary structures as much as possible, the builders first raised those permanent objects that they needed to speed up the work. These were the elevator and skip lifts, the rock-loading units and the tippers. The permanent elevator lift, which has been in operation for more than a year, is twice as productive as a temporary elevator. It made it possible to speed up the driving of the workings noticeably. The permanent lighting, charging garage for the electric locomotives, central electric power substation and central pumphouse are already in operation. The builders are using all these units. All premises on the surface will be ready to receive equipment a year before the mine begins operating.

Dneprogiproshakhta's collective also works profitably. At first, it was planned that the mine begin operating at the end of 1983. The planners were asked to examine their initial decisions with a critical eye and look for ways of accelerating the beginning of mine operation. They did that, and this is the result. Several progressive decisions were made that substantially reduced the amount of work necessary for the preparation of the workings. All of the sanitary engineering structures, which had previously been "dispersed" in many locations on the surface, were concentrated in a single block, and again there was a profit.

In recent years, of the work done by Dneproshakhtstroy about 60 percent was not in line with its profile and purpose and its basic work -- the construction of coal enterprises -- was delayed. Things are different now. Dneproshakhtstroy has placed at Dneprotyazhstroy's disposal several subunits that specialize in the building of industrial objects for other departments.

This was a necessary measure, but it did not come about without some cost. During the reorganization of the combine, its construction base was given to Dneprotyazhstroy. The mine builders now order reinforced concrete goods, basic metal articles and wood materials and goods from it, but they are not delivered on time, since the base is concerned primarily about its own departmental organizations.

"In connection with the reorganization," said ShSU-4's chief engineer, A.P. Mukhortov, "Dneproshakhtstroy was left with an inadequate number of trucks, which has also affected our administration."

The acceleration of the beginning of operations at the mine also depends on the customer, which is Pavlogradugol'. It should have been more concerned about deliveries of equipment and materials that are not in short supply. For instance, the construction of a new dining hall with 150 places is being completed, but there is no way it can begin to be used. Instead, in the existing dining hall there are long lines during the dinner break.

This is not all. There are 1,200 men working on the mine. They live in Ternovka, Pershotravensk and Pavlograd, at distances of 23, 28 and 35 kilometers, respectively, from the project. The commuting facilities for the workers are poorly organized.

In order for the mine to begin operating, it is necessary to have 27.7 kilometers of shafts. Already there are more than 16 kilometers. The hardest work has been done. The driving team of, for example, G.P. Kulik has had to work under complex geological conditions -- a high water level in the bed. However, the miners are steadfastly overcoming the elements. Right now the collective is engaged in driving a paved haulage drift 2.5 kilometers long.

N.G. Oleynikov's crew also deserves some good words. Two-thirds of the crew are young men who are honorably carrying the baton given them by their mentors. The collective has to its credit drainage galleries and the second conveyor extraction drift that is 1,200 meters long. Its rapid driving began in June. A.S. Sinyukov's crew of shaft drivers is not lagging behind, either. Right now it is preparing to reinforce the skip hoist shaft, and not long ago it finished digging a bunker with a volume of 1,000 cubic meters in the rock -- in 4 months instead of 6.

Together with his coworkers, V.F. Butchenko, the chief project engineer for Mine No 21/22, visits the construction site regularly and deals with any urgent questions on an operational basis. The builders receive a great deal of help from the combine's leaders. It would be nice if the customers helped as much. Then the mine would surely be in operation on the date specified in the obligations.

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UKRAINIAN METALLURGY LOOKS FOR NEW COKING COAL SUPPLIES

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Jun 81 p 2

/Article by Yu. Simionov, candidate of economic sciences and reader, construction engineering institute, and V. Babenko and V. Belyayev, candidates of geological-mineralogical sciences and department chiefs, VNIGRIugol': "Coal Instead of... Coal"/

/Text/ When the successes of the metallurgists of Azovstal' /Azov Metallurgical Plant/ are mentioned, they are usually connected with the fortunate location of the raw material base. Primarily, this means the iron ores of the Krivorozh'ye and the coking coals of the Donbass /Donets Coal Basin/. It is precisely because of this combination that Azovstal' is one of the 10 largest enterprises in the branch and that its rate of growth increases every year. But how will this high rate be maintained if the great Donbass -- the source of coking fuel -- is finally mined out? This question is a very important one, because at the present time coking coals are an irreplaceable production fuel for ferrous metallurgy. In the next decade the coke requirement will be about 200 million tons, about half of which will be used by metallurgical enterprises in the European part of the USSR. Where will it be obtained?

In recent years the extraction of the basic grades of coking coals has not increased in the Donbass, although the need for them has risen sharply. The deficit is now being made up by the Karagandinskiy, Pechorskiy, Kuznetskiy and other coal basins. As a result, the raw material must make a journey of several thousand kilometers and the quality requirements are not met. This is both expensive and irrational and, naturally, cannot help but be reflected in the cost of the products from metallurgical enterprises in the southern part of the country, particularly those from Azovstal'.

In our opinion, however, the coke requirements of ferrous metallurgy enterprises in the European part of the country can be satisfied by the Donbass alone. In order for this to happen, the scarce grades of coal in the coke mixture must be partially replaced by more widely available ones: light sintering and light metabituminous coals. According to the assertions of geologists, in the Donbass the reserves of these grades of coal are so significant that at the present level of extraction they will last for several decades.

In order to increase the proportion of gas coals in the mixture to two-thirds, the processing of the fuel at the mines and in the concentration plants should be improved, while the coke chemists will have to introduce new and progressive methods for preparing and coking coal. In particular, here, we are talking about the forming method.

The production of formed metallurgical coke is a new and progressive technology. Extensive and many-sided research in this field is being done by scientists in Japan, the United States and other countries. Such experiments have also been performed in our country, particularly at the Bagleyskiy Coke Chemistry Plant. They were begun in 1979 and promising results were obtained. The introduction of this innovation everywhere would make it possible to achieve a sharp reduction in the consumption of scarce grades of coal for coking. This year, however, the Bagleyskiy coke chemists have provided for the construction of only a single industrial installation. This is something for USSR Minchermet /Ministry of Ferrous Metallurgy/ to think about. It is also a problem for the Ministry of Heavy and Transport Machine Building, which is obligated to produce the appropriate equipment.

And there is yet another reserve for strengthening ferrous metallurgy's fuel base. Right now, reserves with beds more than 1 meter thick are the ones that are being worked most intensively. At the same time, only a little more than one-third of the coking coals is extracted from thinner beds. In order to increase the proportion extracted from these beds in the future, it is necessary to accelerate the development of the technology for exploiting them.

It is also necessary that the coal enterprises' planned capacities be reached everywhere. Last year the difference between the amount of coal extracted and the planned indicators for mines belonging to Donbass associations was more than 20 percent. Complication of the geological and mining conditions naturally has some effect here, but there are reserves for more efficient utilization of capacities. They consist of improving the preparatory work, carrying out technical re-equipping and reorganization of existing mines, and eliminating defects in the organization of production. This work should be under the control of the USSR and Ukrainian SSR Ministries of the Coal Industry.

As we have seen, expanding the fuel base for metallurgy in the Ukraine is fully realistic. The importation of coking coals from the northern and eastern parts of the country can be gradually reduced and then even halted while the existing level of coke production is maintained. The important thing is that this reserve be put to use in the near future. This will also be the answer to the party's and government's decision that the extraction branches adopt a more rational attitude toward useful minerals.

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JANUARY-MAY GAS PRODUCTION UP

Moscow EKONOMICHESKAYA GAZETA in Russian No 24, Jun 81 p 3

[Article by S. Ivanov: "Utilizing All Reserves Competently and Effectively"]

> [Text] The production associations, plants, factories, and all industrial sectors are now deeply analyzing the work results of the past 5 months of 1981, and they are revealing additional reserves which would ensure successful completion of the annual plan, and satisfaction of socialist pledges.
>
> The work done by a number of industrial sectors in the 5 months is reported below.

Since the first days of 1981 the collectives of gas industry enterprises and organizations have been engaged in a massive socialist competition to increase gas extraction. The adopted pledges are being satisfied.

According to the first figures, 12 billion cubic meters more gas were extracted in the Soviet Union in January-May than in the same period of last year. The increase was about 7 percent. Enterprises of the Ministry of Gas Industry exceeded the 5-month target by 2.7 billion cubic meters of gas. Labor productivity increased by 4 percent, as opposed to the planned 1.9 percent.

Since the beginning of the year, workers and specialists of "Orenburggazprom" extracted 875 million more cubic meters of gas than planned, and they produced 2,400 tons of sulfur. They drilled 36,800 meters of wells at the fields--a little more than 3,000 meters above the target. V. Lipatov's team distinguished itself especially: It reached a drilling rate of up to 933 meters per well per month, as opposed to the standard of 670 meters. The collectives of the main compressor station of the "Soyuz" gas pipeline (chief, G. Fetisov) and of the crude gas refining facility (chief, V. Mitryayev) have taken the lead in the competition.

Laborers developing the "Medvezh'ye" deposit in Tyumenskaya Oblast placed 10 new wells into operation during the 5 months, having saved 144 tons of chemicals. The collective of "Nadymgazprom" Association's best operational and production service, No 2 (chief, V. Demin), is an example of thrifty expenditure of fuel and energy resources. It has already saved 190,000 kilowatt-hours of electric energy and 1,600 gigacalories of thermal energy. In 5 months the "Nadymgazprom" Association exceeded the target by 289 million cubic meters of gas.

The Vostochno-Shatlykskaya Operational and Production Service in the Turkmen SSR (chief, S. Usmanov) surpassed its gas extraction plan. Its collective raised the well use coefficient to 0.96, and it reduced gas consumption for in-house needs by 700,000 cubic meters.

All associations of the Ministry of Gas Industry surpassed the gas extraction targets for the 5-month plan.

Workers of the "Tyumentransgaz" Association are ensuring uninterrupted flow of gas through high-capacity pipeline systems. They have moved 41.2 billion cubic meters of gas to the central regions of the country's European territory and to the Urals; this amount includes 1.4 billion cubic meters in excess of the plan. Fifty gas pumping units were repaired during the 5 months, as opposed to the 47 required by the plan.

The "Ukhtatransgaz" Association is also working well. An extra 600 million cubic meters of gas were carried by the "Siyaniye Severa" main pipeline. The cost of gas transportation has been reduced by 6.2 percent.

But at the same time, the sector failed its 5-month plan for sulfur production because of delays in starting up the production capacities at the Mubareks Gas Refinery (Uzbekistan), and setbacks in petroleum extraction by "Kaspmorneftegazprom".

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PROBLEMS IN DEVELOPMENT OF TYUMEN' GAS COMPLEX AIRED

Moscow EKONOMICHESKAYA GAZETA in Russian No 24, Jun 81 p 14

[Article by Yu. Topchev, Chief Engineer, "Tyumen'gazprom" All-Union Industrial Association: "The Problems of a Gas Complex"]

[Text] It is not easy to develop large natural gas deposits in Tyumen' soil. Nature placed them in extremely complex climatic and geographic conditions. But the experience, accumulated in previous years, of developing the unique underground treasurehouses and transporting the gas over great distances permits us to plan the growth in gas extraction confidently.

Out of the 370 billion cubic meters of gas that are to be taken from the subsoil of West Siberia in 1985, almost 350 billion cubic meters will be provided by our association's fields. The proportion of Tyumen' gas in the Soviet Union's total extraction volume is to be increased from 33.1 to 54.7 percent. This means that in the next few years, we will have to perform a volume of work in the oblast's north which will be more than twice the amount done in the last 15 years.

More than 50 scientific research, planning, and scientific-production organizations belonging to 17 ministries and departments are dealing with the problems of assimilating the subarctic deposits, in close contact with the gas extractors and builders. This cooperation has led to solution of complex problems, such as building highly productive and highly dependable gas wells in permafrost. The procedures for collecting and preparing the gas at the fields have been improved. Facilities are being fully automated, and prefabricated modular construction is being introduced.

The cost of drilling wells in northern conditions was reduced by a time and a half. Growth in the unit output capacity of production equipment made it possible to raise the productivity of gas preparation facilities by a factor of two. Using cluster drilling, we have reduced the length of the gas collection networks by 20 percent and the developed area of the formations by 50 percent, which is extremely important from the standpoint of environmental protection.

The economic effectiveness of work done during the 10th Five-Year Plan in all directions of scientific-technical progress by the "Tyumen'gazprom" All-Union Industrial Association was almost 100 million rubles.

The strategic line of development of the northern gas fields in the 11th and subsequent five-year plans was clearly defined by the 26th CPSU Congress. Priority was placed on hastening development of the unique Urengoy field, capable of supplying enough natural gas to both satisfy the country's internal needs and export gas abroad. By as early as 1985 the gas giant is to provide up to 40 percent of the nation's total gas extraction volume.

This field is unique not only because of the tremendous size of the gas reserves, but also because a significant quantity of liquid hydrocarbons--oil and gas condensate--can be extracted from underlying horizons. Thus we are talking about integrated development of the formation. In particular we could begin extracting condensate in large volumes in the present five-year plan, especially to satisfy the local demand for processed products--diesel fuel, motor vehicle gasoline, aviation fuel, propane, and butane.

Each year about 250,000 tons of liquid cargo are imported to the vicinity of Nadym and Urengoy; the demand for such cargo will increase by 1985. Development of the condensate processing capacities to satisfy the needs of the oblast's north would not only significantly relieve the load of the railroads and river transport, but it will also be a unique sort of dress rehearsal for initiation of gas extraction on an extensive scale at the beginning of the 12th Five-Year Plan.

By that time, preparations of this sort will have also been made for exploitation of the oil deposit at Urengoy. We need to develop the procedures for building oil pipelines in a permafrost zone, and we need to learn how to extract oil from presently exploited deposits effectively. In the preparatory stage, we will need to subject the petroleum margins of Urengoy to experimental industrial exploitation, in coordination with condensate extraction.

We need to solve many problems associated with integrated development of the Urengoy gas-petroleum-condensate deposit. Among them are priority construction of production, repair, and transloading bases, transportation systems, power supply facilities, and housing.

A program adopted last year to provide housing and good cultural and personal conditions to gas and oil workers is being implemented successfully. Unfortunately, however, creation of the industrial infrastructure is lagging. Supporting ministries are not making an adequate effort to develop their output capacities in our area. The main general contractor responsible for equipping the gas fields--Glavtyumen'neftegazstroy of the Ministry of Construction of Petroleum and Gas Industry Enterprises--has not increased its program of construction and installation at the facilities for 4 years, while gas extraction has risen by 3.3 times. Progress in building up Urengoy is especially slow. The construction effort in the 10th Five-Year Plan fell short by three integrated gas preparation facilities and eight wells. The production bases, power supply facilities, utilities, and residential districts of Novyy Urengoy are being built too slowly.

Organizations of the Ministry of Transport Construction, responsible for laying the motor highways, are not doing enough work. Once again at Urengoy, they were able to place only 10 kilometers of paved road into operation, and they were unable to finish the highways at Medvezh'ye and Vyngapur.

This means sizeable outlays on air transport. Thus the "Nadymgazprom" Association spent 74 million rubles for air services in the five-year plan. This would be enough to build a motor road from Nadym to the Medvezh'ye deposit. Quite obviously, the Ministry of Transport Construction must do everything it can to hasten road building in the gas-rich North, putting 300 kilometers of paved road into operation each year. This would make it possible to initiate year-round construction, and almost double the rate of erection of industrial facilities and gas pipelines.

Development of gas extraction and transportation at Urengoy would be unimagineable without fundamental solution of power supply problems either. For the moment, the gas fields and gas transportation mains are using energy produced by temporary electric power plants that are not very economical. Organizations of the USSR Ministry of Power and Electrification are behind in their effort to erect power transmission lines, substations, and transformers.

The rear services of West Siberia's gas industry have fallen behind in many ways due to interdepartmental barriers. It is high time to surmount the lack of coordination in the actions of the ministries, and to raise the responsibility of business executives for strict compliance with planning discipline.

The USSR Council of Ministers formed a commission to study the problems associated with development of the West Siberian petroleum and gas complex. It is helping us to control the complex better, to account more fully for regional and sector interests, and to coordinate them better.

Much work will have to be done in the very next few years to make the preparations for development of the Yamburg and Zapolyarnoye gas fields, located north of Urengoy. To make these giants accessible, we would need to extend our transportation lines to them by 1984-1986. This means not only motor roads, but also the planning and construction of railroads connecting Urengoy and Nadym, Urengoy and Yamburg, Urengoy, Zapolyarnoye, and Russkoye, and Nadym and Salekhard. Today there are almost no opponents to such a railroad system left. Of course, some still doubt the suitability of building the Urengoy-Yamburg rail section. But experience has already demonstrated to us many times that we need to hasten development of transportation mainlines in Tyumenskaya Oblast. All the more so because Yamburg is located next to the Yamal Peninsula, where new deposits of crude hydrocarbons have already been discovered and estimated.

The Ministry of Gas Industry has developed its "Integrated Master Plan for Assimilation of the Urengoy and Other Adjacent Gas-Petroleum-Condensate Deposits to 1990". This plan is extremely important to the producers, and therefore it would be desirable to examine and approve it more quickly.

It is now becoming necessary to write up a more-extensive plan for development of Siberian gas industry to the year 2000; this would be a good basis for writing the five-year and annual plans of enterprises belonging to the different sectors participating in assimilation of the West Siberian complex. In my opinion such a plan could be developed right now, since the basic directions of scientific-technical progress upon which such a plan must be based have been generally defined.

11004
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DELAYS IN GASIFICATION OF NOVOSIBIRSK CRITICIZED

Moscow IZVESTIYA in Russian 30 May 81 p 3

/Article by A. Illarionov, special correspondent, IZVESTIYA, assisted by V. Vostrikov, member, City Committee for People's Control, and Kh. Rozhina, V. Boroday, D. Dombayev, V. Kobyzhakov, V. Turbin and V. Khoylov, students, Novosibirsk Higher Party School, and activists, Committees for People's Control: "A Look Back at Yesterday"/

/Text/ An opinion that was held quite widely was that dirt, smoke and soot are the indispensable companions of boiler rooms. Therefore, the picture at the Boiler Instrument Plant imeni V.I. Lenin was completely unexpected. Inside and around the plant it is clean, and no thick black smoke pours out of the chimney. This is all very easy to explain. In December the plant started using a new fuel: by-product gas.

Boiler Unit No 1 of TETs-4, the boiler unit at the Botanical Garden [botanicheskiy zhilmassiv] and the thermal engineering and manufacturing installations in the first industrial enterprises have also been converted to gas, which is arriving in Novosibirsk in sufficient amounts through a pipeline from regions in the Central Priob'ye.

The use of by-product gas instead of coal and fuel oil in such a large city as Novosibirsk makes a great deal of sense. It will mean smaller shipments of solid and liquid fuel by the railway system, which is overloaded even without this type of freight. Its primary advantage, however, is that it will make the city's atmosphere healthier. Right now, on windless days the hundreds of boiler room, TETs and plant manufacturing installation chimneys create over the city and near it what weather forecasters call industrial haze. Many hundreds of tons of ash are discharged into the air over the city every year. But in the "Basic Directions for the Economic and Social Development of the USSR," as approved by the 26th CPSU Congress, it is written: "Improve technological processes and transportation facilities for the purpose of reducing discharges of harmful substances into the environment..." One of the important methods for achieving this improvement is the use of cheap by-product gas in industry.

The gas first arrived in Novosibirsk in August of last year. This was an event that was noted with dignity, as good words were said about the oil workers and builders. The supplying of the city with gas was not unexpected: it had been written about in the newspapers, and different methods for supplying industrial enterprises with gas were discussed many times in business meetings. But, nevertheless, the schedule for the preparation of the networks and enterprises for receiving gas turned out to be hampered to a considerable extent.

What is the reason for this? We received a typical answer at the Novosibirsk milk combine. There they did not believe that the main pipeline would be laid so quickly. As a result of this "uncertainty," the preparatory work -- the laying of the networks and the rearrangement of the equipment -- will take until the third or fourth quarter of this year.

The problem proved to be more serious than anyone had at first assumed. At those enterprises where it was planned to use a large volume of the new fuel, many things had to be done. Essentially, it was necessary to rearrange the appropriate equipment. And this was not something that could be done in a week or a month. It was necessary to prepare for it properly. Nevertheless, when the time came to order the necessary materials and equipment, the planning documentation was not yet ready at all the enterprises. Here and there the materials were ordered without it and mistakes were made.

The gasification of the city's enterprises also suffered from shortcomings. In this matter, the main problems were not delineated in the appropriate manner. The large gas consumers were lumped in a single group with the small users. Those who drew up the schedule apparently started with the idea that if the preparations at one plant were held up, at another plant they would not be made, either. Instead of a concentration of forces and facilities in critical areas, they were dispersed. Another fact that was lost sight of was that the conversion of the large power plants to gas would promise to give the city that increase in heating capacity that Novosibirsk so desperately needs.

A new schedule has been prepared by the Novosibirsk gorispolkom. According to it, during the first quarter it was necessary to put a third gas distributing station in operation for the very largest consumers: TETs-2, the metallurgical plant, the "Sibsel'mash" and "Sibtekstil'mash" plants and others. We visited the construction site in the middle of May and are convinced that it will be at least another month before it goes into operation.

The pipeline from the distributing station to the enterprises is an important element in the gasification of this industrial complex. A large part of it had already been laid, but the most complicated sections at traffic intersections and in busy areas had not yet been installed.

The Novosibirsk SMU /Construction and Installation Administration/ of "Uralgazstroy," the builders of the urban gas networks, still does not have the necessary production base and lacks the proper machinery.

However, this is not the only reason for the delay. The SMU's modest forces are scattered in many areas, and this interferes with systematic work.

The fourth gas distribution station should begin operating this year. The newly organized "Novosibirsktruboprovodstroy" trust has not yet begun building this station. Therefore, no one is hurrying the preparations for the reception of gas from this station at such large enterprises as the tin combine, "Sibelektrotyazhmash" and their neighbors.

Meanwhile, the construction of such a distribution station is no problem during the summer. It will be more difficult to complete the construction of the gas networks to the plants and to reorganize their power and production equipment. However, this apparently does not alarm the leaders of the enterprises in Kirovskiy Rayon.

There is yet one more hindrance in this matter: at the plants they think that they can wait for the gas and go ahead and work without it, but to reason this way is to be badly mistaken. The gas cannot wait: if it is not completely used up by consumers, the oil men are forced to burn the excess.

11746
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FUELS

MAJOR GAS DEPOSIT FOUND ON LOWER VOLGA IN ASTRAKHAN'

Moscow PRAVDA in Russian 2 Jun 81 p 2

/Article by L. Borodin, first secretary of the Astrakhanskaya Oblast Committee of the CPSU: "The Astrakhan' Springboard"/

> /Text/ Astrakhan' has long been famous for fish, watermelons and its docks. Soon another "specialty" will appear for it. A major gas deposit has been discovered on the banks of the Lower Volga. The industrial development of this deposit has to begin.

The territory of the oblast for many years now has attracted the attention of geologists as a promising territory for reserves of petroleum and gas. Back in 1952 the first gas deposit was discovered here, at that time the Astrakhan' petroleum and gas field was also being formed. But during that period we touched only a small portion of the enormous store of hydrocarbon raw material. In 1976 a mighty gas condensate gusher with a daily productivity of 600,000 m^3 was struck at a depth of 4,000 m not far from Astrakhan'. From this well alone geologists determined that the reserves here were very significant. A year later a second gusher was hit, but on the opposite, right bank part of the territory.

Scientists believe that the new deposit, which, incidentally, covers an area of 30,000 km^2, is among the largest in the European part of the country. Moreover, geophysicists have come to the conclusion that on the Astrakhan' anticline it is possible to expect the discovery of new petroleum- and gas-bearing beds at depths of 6,000-7,000 m.

It must be taken into account that this deposit is located in the immediate vicinity of large industrial regions, not far from the Central Asia-Center main gas pipeline, in the neighborhood of a operating main rail line and an operating water main. And in this lie its great value and importance. The expedience of its quickest possible placement into production is dictated by the anticipated great provision with reserves of gas and the components contained in it. It will become the largest source of the supply of the national economy of the country with reclaimed sulfur, condensate and liquified gases.

The concern of the oblast party committee about the quickest performance of the complex of drilling operations, the calculation of the reserves of raw materials and the placement of the deposit into industrial production is understandable. In all more than 50 wells have to be drilled to a depth of 4,200 m. At present the immediate task on the development of the petroleum- and gas-bearing region boils down to precisely that.

It should be said that the USSR Ministry of the Gas Industry and the USSR Ministry of Geology have already taken a number of practical steps in this direction. At present geologists are drilling 14 development wells. The Ministry of the Gas Industry with the enlistment of the appropriate organizations of other ministries and departments in accordance with a program, which was submitted for the approval of USSR Gosplan, has drawn up the technical and economic substantiation of the development of the Astrakhan' gas condensate deposit and the building of the first section of the complex with a volume of production and treatment of 6 billion m^3 of raw materials a year.

In order to increase the effectiveness of capital investments in the future it is envisaged to increase the production and treatment capacities to 18 billion m^3 a year. This will expedite the payback of the gas chemistry center and will make it possible to meet completely the demands of the oblast for gaseous fuel and to allocate more than 6 billion m^3 of it annually for all-union needs. The task is to begin during the current five-year plan the industrial operation of the deposit and to provide the national economy more rapidly with valuable and inexpensive chemical raw materials. The production cost of reclaimed sulfur, for example, will be 15 percent less than at the operating Orenburg complex and two-thirds as much as natural sulfur. But the reserves of gas are such that they have made it possible for two decades to meet completely the demands for this type of raw material. The unusually high percentage content in the gas of such a valuable component as condensate, which consists mainly of gasoline-kerosene fractions, is of particular interest.

At the same time it is necessary to speak of the fact that the work on preparing the deposit for the present is being performed slowly. Five years have passed since the mighty gas gusher, which announced the riches hidden in the depths of the Astrakhan' land, was hit. However, of all the started wells at present only one is ready for pilot industrial operation. As a result the completion of the first stage of prospecting and the calculation of the reserves, which was outlined for 1979, was in fact stalled.

Of course, the work was simply too much for the poorly equipped Astrakhan' Petroleum Prospecting Expedition of Deep Drilling. It is capable of drilling in a year only 10,000-12,000 m of wells, but up to 40,000 m must be drilled. The weak material and technical base is holding up things. Housing for the geologists and facilities for social, personal and cultural purposes are being constructed slowly. As a result great difficulties have been created in the selection and attachment of personnel. The production base of the Astrakhan' geologists has been undergoing designing for years, but no end of this work is in sight. The Lower Volga Geological Administration should have its say here. The construction and installation administration, which was recently set up in Astrakhan, so far is within the section, which operated here earlier, and cannot improve the situation significantly.

It seems that for the comprehensive solution of the questions of development and, subsequently, production drilling it is necessary to create in Astrakhan' a powerful organization, which unites all the subdivisions of the geologists and is capable of carrying out prospecting at a high organizational and technical level.

And there is another very urgent problem. In order to expedite the placement of the deposit into operation, it is necessary to set up on the territory of the oblast an enterprise for the drilling of production wells, which is subordinate to the Ministry of the Gas Industry. Only on this condition is it possible to ensure the truly extensive development of drilling operations at medium depths.

It is also impossible to pass over in silence such an important question as the scientific backing of the forthcoming work. It is well known that it is impossible to achieve a great effectiveness of geological prospecting without detailed studies of the region being developed. This is especially important for our conditions, under which the search for mineral raw materials is being made at great depths, in an aggressive environment and at high pressures. But in the oblast there is so far no organization which would be able to cope with the set task. A small collective of a department of the Saratov Scientific Research Institute of Geology and Geophysics is making the studies. It has made its contribution to the substantiation of the prospects of the presence of petroleum and gas in the depths of the oblast. But today many questions are already beyond its power.

For many years the head institute has been predicting the presence on the territory of the oblast of formations of petroleum and gas at depths up to 6,000-7,000 m. In the next few years the geologists "will go" to these depths. At the same time the institute is not developing the amount of scientific work and the laboratory base of its own department. But without preliminary basic developments it is simply impossible to put major physical assets and equipment into operation. It seems that it is already time to set up an affiliate of the institute in Astrakhan'.

I want to believe that the union and the republic ministries of geology will provide effective assistance in the solution of the problems and will create the organizational, material and technical conditions for the quickest development of the deposit.

The amounts of scientific research work on questions of the drilling, extraction, treatment and transportation of gas should also be increased. But for this it is necessary to establish in Astrakhan' an affiliate of the All-Union Scientific Research Institute of Gas. Taking into account that the gas treatment sector is new for the oblast, it is expedient for the Ministry of the Gas Industry right now to solve the problem of opening here a technical school, a tekhnikum of the gas industry and to think about a system of the training of personnel of the highest level.

Of course, the question might arise: "But will not the development here of the deposit of gas and, subsequently, certainly petroleum as well be deleterious for the unique flora and fauna of the lower reaches of the Volga?" The question is reasonable. Here, too, there is something for scientists and interested ministries to think about.

Astrakhan' gas has already announced itself. Now it is necessary to give it an outlet more rapidly and to include it in the national economic turnover.

7807
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FUELS

CASPIAN OFFSHORE RIG DEVELOPMENT

Moscow IZVESTIYA in Russian 6 May 81 p 6

[Article by Nikolay Paniyev (Baku-Moscow): "Rigs in the Sea"]

[Text] A distant event, rather a laconic conversation at the Eiffel Tower, brought me back by association to Baku. In the late 1960's a friendly reception was organized for Soviet tourists in a hall of the Parisian giant. One of my fellow countrymen from Baku noted: if such tall and strong towers as the Eiffel Tower were built on the Caspian, the way to the store of offshore petroleum would be opened. Our guide, a middle-aged Parisian woman, cried out a truly French "U-la-la!," which meant in this case that even in our age of the burst of scientific thought there is also a limit to such fancies.

The memorable short dialogue had an unexpected continuation far from the place where it began.

The first plant in our country, which will build tall and strong steel installations for the drilling and extraction of petroleum and gas in deep regions of the sea, is rising 30 km from Baku, on the Karadaga coast of the Caspian. That Baku "dreamer" said this about them. And he must have had second sight. A very important, large-scale matter was planned in Karadaga. As to the continuation of the dialogue, the French--representatives of the Parisian firm EPTM, according to the design of which the largest new construction project of the Azerbaijan five-year plan is being built--also took part in it. Monsieur Dreyfus, head of the task force of the firm, which visited Baku, as I was told, did not refrain from the traditional exclamation, in which admiration for what was seen now resounded.

Thus, there is a plant of deep-water foundations. People in their own way are already calling it a plant of "steel islands." From such artificial islands, which will subsequently form a large "archipelago" on the Caspian--from the shores of Baku to the shores of Kazakhstan and Turkmenia--they will conduct an offensive against the offshore petroleum and gas formations.

The Baku dwellers have gained experience of world significance in this matter. The assault on the Caspian took place in stages, as the drilling equipment was developed. History has preserved an interesting document which attests to the aspiration of experienced Baku experts to make their own significant contributions to the petroleum tank of the country. In one of the labor reports to the party Central Committee Baku petroleum industry workers wrote: "We have taken many fortresses. We have conquered the sea. We have built the socialist Bay imeni Il'ich. We have rattled the whole world with the Baku invention of pipe drilling. We will take another fortress--we will master technology and science."

I remember Kyamal Mamedovich Abdullayev, one of the first Baku offshore petroleum industry workers--the participants in the development of the legendary Neftyanyye Kamni. He is now the first secretary of the Karadagskiy Ravon Party Committee. Upon meeting him something struck my attention: on his large desk with ideal order there were a sheet of paper and a folder. The head of the office did not fail to explain:

"This is the daily summary of the production of petroleum and gas. While in the folder there is everything about the plant of deep-water foundations. In short, it is the today and tomorrow of our region, and of the entire petroleum and gas industry in the republic, which is basically being transferred to the shelf of the Caspian."

And he explained what has been said: a characteristic feature of current petroleum and gas production in Baku, figuratively speaking, is "the shift from the land to the water." The Caspian of our times already provides more than two-third of the petroleum and up to 90 percent of the gas out of the total production in Azerbaijan. The shelf of the sea is the main petroleum and gas springboard of the republic. After Neftyanyye Kamni its "younger brothers" appeared in the water area of Baku and far out in the open sea.

All the shelf facilities have been "gathered" under one roof--the Kaspmorneftegazprom All-Union Industrial Association with subordination to the USSR Ministry of the Gas Industry. The famous prospector of Caspian petroleum, USSR State Prize winner and Hero of Socialist Labor Kurban Abasov, a delegate to the 26th party congress, is in charge of the association. The path of the offshore petroleum industry worker, who became associated with the Caspian 35 years ago, runs from the student of a driller to the chief of a large association. The long-time friend of Kurban Abasov--the first secretary of the Karadagskiy Rayon Party Committee--had grounds to recall once again what Abasov and the other first prospectors of Caspian petroleum had done:

"In the Caspian it began with the development of offshore regions with a water depth of several meters. With the years the prospector-drillers conquered new depths. The latest achievement is the drilling of wells from a steel installation at a sea depth of 80-90 m. But we know that petroleum also occurs at greater depths, it is possible to get to it only by the utmost strengthening of the technical base of offshore drilling and the stepping up of the work on the construction of permanent platforms and hydraulic structures."

Today on the desk of the rayon committee secretary, let us say frankly, there is not such a "pile of figures" in the daily summary of the production of petroleum and gas. But what is in the folder? My companion hastens to satisfy this interest:

"Let us look at tomorrow. Let us begin with one comparison. The 110th year of the industrial production of petroleum in Baku is being marked this year. In this time slightly more than 1 billion tons of petroleum have been pumped from the ground. The forecasts--from Gubkin to present-day scientists--are inspiring: in the stores of the Caspian there is petroleum which can be taken only by means of the unique products of the plant of steel islands."

On parting the secretary says confidently:

"Come back at the end of this five-year plan, and the figures in the summary of petroleum and gas production, I am certain, will be different."

When approaching Baku by plane, on the Zykh coast of the Caspian it is possible to see openwork plaits of steel structural components. It is the work being completed on the building of a drilling rig--a platform of their own design, from which they will carry out the drilling of wells in regions with a water depth of 100 m.

"But all this is a prelude to what awaits the offshore petroleum prospectors tomorrow," Aleksandr Olegovich Barabashev, chief engineer of the plant of deep-water foundations, continues the conversation begun in the rayon party committee. "From our permanent platforms it will be possible to carry out the prospecting, drilling and production of the main fuel and energy resources, having negotiated as yet unheard of depths of the sea and building superdeep wells. It is possible to imagine, of what dimensions and weight the steel foundations will be for the operating platforms, which are like towns with a population of 200 offshore petroleum industry workers, a large complex of production, auxiliary, personal, cultural and other facilities, a helicopter landing pad."

The person speaking with me is a former construction worker and participant in many new industrial construction projects of Siberia, he worked for several years in Algeria. But he considers the construction project on the Caspian coast to be special.

The permanent platform, like a giant mushroom, has a base and a cap. In technical language, a monoblock and a deck. The foundation--a monoblock about 100 m high--will be built at the plant in Karadaga. The upper deck portion--the operating platform--will be built at a plant in Astrakhan'. "The rootlets are ours, while the tops are yours," the speaker recalls with a smile what the workers of Baku and Astrakhan' say about this cooperation. The erection of the bulky item weighing 20,000 tons will take place on land--in a horizontal position, then they will "push" it onto a large special barge, rather a caravan of barges, and it will be on its way to the offshore region with the deep-water occurrence of petroleum and gas. Heavy-duty cranes will position the special platform on the sea bottom, and the steel island is ready for work. On each island the main facility is 24 wells. The task has been set to build the first steel island on the Caspian in [illegible] years.

But for the present they have launched a broad front of complex operations to the order of the USSR Ministry of Installation and Special Construction Work at the gigantic site with impressive parameters: 127 hectares of dry land, 80 hectares of sea, four large general contractors--republic construction and installation organizations. Precisely complex operations! A seaside town of the plant workers with blocks of highrise apartment houses and cultural, personal, educational and administrative buildings is being built at the same time not far from the industrial zone.

"At first the plant, and then an apartment house--this is not our, but a long obsolete 'motto'," says Rafik Sadykhovich Tariverdiyev, chief engineer of the enterprise being built. All the conditions for work and living are being created already today for the collective of the future plant. And there is another peculiarity of our construction project: the work schedules, as a rule, are being exceeded. This is how it was last year, this is how it was in the special labor effort in honor of the 26th CPSU Congress. This is how it will be during the first year of the new five-year plan.

An important task set by the party congress--the implementation of large-scale plans during the new five-year plan, particularly in the fuel and power industry--is being successfully accomplished at the Karadaga Plant of Deep-Wate. Foundations. It is also an example of our mutually advantageous foreign economic relations.

7807
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FUELS

STABILIZATION OF PETROLEUM, GAS PRODUCTION IN AZERBAIJAN

Baku BAKINSKIY RABOCHIY in Russian 2 Jun 81 p 2

[Article by Candidate of Geological and Mineralogical Sciences D. Mazanov, chief of a laboratory of the Institute of Geology of the Azerbaijan SSR Academy of Sciences: "The Goal Is Stabilization"]

> [Text] To increase the reserves of petroleum and gas in order to stabilize their production. This task, which was set for the workers of the republic by the 26th party congress, took up only one line in the Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990. But it is difficult and requires the implementation of a vast program of work by both production workers and scientists. The author of the material being published states his opinion on the problem of increasing the "petroleum" potential of the republic, as well as of calculating the available reserves of fuel in the ground.

The studies of the mineral resources of the republic for the purpose of detecting deposits of petroleum and gas are being conducted at a stepped-up pace. Newer and newer regions of the sea and dry land are being covered by exploration and prospecting. And this, of course, is yielding its results. In recent years a number of regions of the occurrence of fuel have been found; the deposit imeni 28 Aprelya, the Muradkhanly, Zardob and other deposits, for example, were identified. This makes it possible to judge the promise of the search for significant petroleum in the republic. And it is natural that the 30th Congress of the Communist Party of Azerbaijan advanced the task along with the intensification of production at old sites to step up the prospecting and exploration for fuel, particularly in the poorly studied central and western regions of the republic.

Unfortunately, we have very little reliable information on the mineral resources of these regions. But it is needed in order to plan for certain here the increase of the production of fuel, so that the risk of economic losses would be minimal. For the exploration for significant petroleum is an expensive business, and we should be more or less certain that we are not wasting the amounts being spent. For this, apparently, the work on improving the method of predicting promising petroleum- and gas-bearing zones should be continued and new, sounder methods, in relation to the existing ones, of predicting their potentials should be developed.

Depending on the degree to which they have been explored, the reserves of petroleum and gas are divided into three categories--commercial, prospective and predicted. In conformity with this the predictions of geologists on their amounts have a different degree of reliability--an error of 5 to 30 percent is permissible in the estimation of the commerical reserves, an error of 30 to 90 percent is permissible in the estimation of the predictud reserves. But such a level of reliability is established regardless of what it is a question of--the reserves of a petroleum- and gas-bearing horizon, a formation, a deposit or, let us say, a region. And it turns out that we calculate the reserves, let us say, of one formation and an entire deposit with the same error. But for confident development drilling and for the reduction of the risk of economic losses it is very important to estimate the reserves as accurately as possible. On the other hand, a petroleum- and gas-bearing horizon, a formation and a deposit have different dimensions and geometric forms. And it is desirable to take this into account when estimating the reserves, as well as the error of our calculations. The existing method being used in practice does not always take this into account. Meanwhile, if this deficiency of it is eliminated, the probability of success when selecting the site and parameters of each development well will increase. Thus, we would be able to reduce the risk of economic losses when searching for petroleum and gas, particularly in the central and western regions of the republic.

Now let us turn to the method of calculating the predicted reserves. The specialists in this field consider its further improvement to be necessary. But how is this to be done? At present the predicted reserves are estimated in such a way that it is impossible to be confident of their reliability. The error of such an estimate is whatever you wish. In conformity with this the information on the predicted reserves can be both almost completely reliable and almost completely unreliable.

It seems that a limit to the permissible error when estimating the predicted reserves should be established. Here they should be calculated on the basis of the available geological and geophysical parameters of the horizons, formations and deposits which are a part of the petroleum- and gas-bearing region being studied. Thus the reliability of the estimate of the reserves of new regions will increase.

The redesigning of the method of calculating the reserves of petroleum and gas, which is being suggested here, of course, is not the only version. Probably, there are also other means of improving our predictions. One thing can be definitely said: it is necessary.

Here I would also like to touch upon the question of the existing reserves for increasing the yield of petroleum and gas deposits. What are meant here are the resources of unexplored and undeveloped formations, which are located in the regions being worked. By studying the history of the development of petroleum and gas production in Azerbaijan you come to the conclusion that in the past precisely this source supplemented the petroleum reserves of the republic. This reserve also cannot be dismissed today.

Today the depths of the regions, in which petroleum has been produced for a long time, are again being studied for the purpose of identifying their reserves. This, let us say, pertains to the territory of the Apsheron Peninsula. Systematic drilling and the discovery of unexplored formations and deep-lying petroleum and gas horizons are being carried out. The same operations are being performed at sea. New equipment and technology of prospecting, which we did not have before, are promoting their improvement. This will make it possible, it seems, to identify more accurately the potentials of such structures as the Kamni Dva brata, the Andreyevskaya, the structure imeni 40-letiya Azerbaydzhana, the structure imeni 26 bakinskikh komissarov, the Promezhutochnaya and a number of others. Many of them are not yet being studied on the proper scale and are not being used in practice. Further, little petroleum is being produced in Prikaspiysko-Kubinskaya Oblast. But reserves of petroleum-bearing sands, which are suitable for mine working, have been identified here, on the territory of Kobistan. But these zones have not yet been studied, so to speak, in depth, their reserves have not been calculated. These operations probably should be included in the program on the stabilization of petroleum production in the republic.

The search for petroleum in the central and western parts of the territory of the Kura River basin should also, in our opinion, be taken into account in this program. In its eastern part, as is known, commerical reserves of fuel have been discovered. The similarity of the geological structure of the Kura River basin with the mineral deposits of the countries of the Middle East also indicates the promise of this area. For a long time the area of the Kura River basin was not subject to a detailed geological study because it is covered by a thick loose sheet. But owing to the appearance of new methods of geophysical prospecting the piedmont part of this territory—the valley of the Alazani and Agrichay rivers--is now quite accessible for study. As a result of this a number of promising structures have been discovered here. Now it depends on the drillers. However, taking into account the available data, it seems that the potentials of the mineral resources here have still not been completely identified, and it it worth working on this during the years of the 11th and 12th Five-Year Plans.

In summary let us say that the key to solving the problem of stabilizing the production of petroleum and gas in Azerbaijan consists in the systematic geological study of its mineral resources, including the zones which have been worked for a long time, with the simultaneous improvement of the methods of predicting the regions which are promising with respect to the presence of petroleum and gas. It should also be said that the increase of the average depth of wells is a general trend. Their intrusion into Lower Tertiary and Mesozoic deposits, which occur deep beneath the ground, is inevitable. At the same time the mine method of extracting petroleum and fuel (bitumenous) shales should be used more and more extensively. But, of course, the main direction is the development of the offshore production of petroleum and gas, the assault on the deep-water sections of the Caspian. Along with this the identification and utilization of the potentials of the Kura River depression should be worked on more purposefully. All these components, having been put together, will also lead to the successful solution of the problem touched upon here.

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STEPPED-UP SEARCH FOR TURKMEN PETROLEUM, GAS DEPOSITS

Ashkhabad TURKMENSKAYA ISKRA in Russian 14 Jun 81 p 2

/Article by O. Peshkov, chief of the Geological Department of the Turkmenneft' Association; S. Khalliyev, chief geologist of the Nebit-Dag Combined Expedition; and G. Bagdasarov, deputy general director of the Turkmenneft' Production Association: "Toward Productive Beds"/

> /Text/ During the 11th Five-Year Plan in the republic the prospecting for reserves of mineral raw material resources, first of all fuel and energy resources, has to be expanded and new petroleum and gas deposits have to be found. Advanced types of geophysical and geochemical studies of mineral resources should be developed more rapidly and the technical and economic indicators of drilling operations have to be improved by means of rapid retooling and the further improvement of their organization.
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> What in practice is being done in this direction? The published materials, which were prepared by the supernumerary department for petroleum and gas of TURKMENSKAYA ISKRA, answer this question.

The Main Directions (O. Peshkov)

The Turkmenneft' Association is performing exploratory and development drilling at 30 sites of Western and Central Turkmenia.

The exploration is proceeding in several main directions. The further exploration of so-called old petroleum- and gas-bearing deposits--Cheleken, Kotur-Tepe, Barsa-Gel'mes, Burun, Nebit-Dag, Kum-Dag--is providing for the present the bulk of the obtained increase of petroleum and gas reserves. The potential of the Pribalkhanskaya Zone, where they are located, has still not been exhausted. But the further exploration for raw materials here involves the increase of the depth of drilling, that is, the discovery of deposits of the Mesozoic, as well as interstructural connectors in the Krasnotsvet series, which contains reserves of petroleum. One of the main tasks of the new five-year plan is to complete their study.

In recent years exploratory and development drilling has undergone considerable development in the Gograndag-Okaremskaya Zone on the uplifts, where with the discovery of Pliocene deposits petroleum- and gas-bearing beds have been found. But as a whole this region has been little studied, although, according to preliminary data, it is very promising. An adequate stock of structures has been readied here for drilling.

The study of the Kizyl-Kum depression, the northern and southeastern edges of which adjoin the productive structures of the Pribalkhanskaya and Gograndag-Okaremskaya zones, is one of the new, promising directions of geological prospecting operations. The discovery of the Erdekli gas deposit confirmed the prediction of geologists concerning the presence in the Pliocene deposits of the depression of productive beds. The prospecting of this region by drilling and geophysical methods has to be stepped up.

The search for petroleum and gas in the Aladag-Misrianskaya Zone, which, according to suggestions, is one of the promising regions of the presence of petroleum and gas in the Mesozoic complex of deposits, is being stepped up.

During the 10th Five-Year Plan 6 deposits and 20 formations of petroleum and gas were discovered. But they are comparatively small in the volume of reserves. The plan of their increase was not fulfilled by the Turkmenneft' Association. There are many reasons for this. Among them are the lack of productivity in the Upper Krasnotsvet and overlying deposits, the limitation of the depths of drilling due to the lack of the necessary equipment, the remoteness of new sites from the drilling base, the difficult conditions of the topography and the geological composition of the structures.

The prediction of the geological structure of the cross-section being revealed acquires particular importance when drilling parametric and development wells at new sites. Unfortunately, it is not always accurate. Such a prediction, for example, was not corroborated when drilling the Uzun-Ada site, which is located in the western section of the Kizyl-Kum depression, and it was turned over to the Turkmen SSR Administration of Geology for repreparation.

There are not enough structures in the region of this depression, which have been readied by geophysical methods. We would like the work on the study of the region to be stepped up.

It is possible to perform the entire amount of the extensive comprehensive program of the search for petroleum and gas, which is planned for the 11th Five-Year Plan, only with the creation of the necessary conditions.

Preparation of Structures (S. Khalliyev)

Great and difficult tasks face the collective of the Nebit-Dag Combined Geological Prospecting Expedition during the new five-year plan. The amounts of geological and geophysical research are increasing. For example, twofold more parametric and development wells have to be drilled.

Greater demands are being made on the quality of the preparation of sites for drilling. In the coming years their comprehensive study by means of electronic and seismic prospecting and gravimetry will become the rule. Such a measure is necessary in our region, which is characterized by fissures, slips and anomalies of the structures.

During the past 5-year period sufficient experience was gained in the integrated use of various methods of research, which made it possible to increase the reliability of geological structural maps, which are the basic material for the location of exploratory wells.

And still the information being obtained does not always objectively reflect the composition of individual structures, especially of deep-occurring deposits. The need has arisen when studying them to combine a set of geophysical methods with parametric drilling. The Geological Department of the Turkmenneft' Association should take part in selecting the method of logging the objects in the deposits underlying the Krasnotsvet and in determining the degree of involvement of interested parties in the performance of these operations.

The collective of our expedition has successfully begun to implement the extensive program of the 11th Five-Year Plan. The geological parties headed by A. Mamedov, V. Lyutenko, G. Shakhnazarov and M. Magomedov and the drilling brigades of A. Ibragimov, N. Veliyev and N. Deniskin completed the 5-month plan ahead of time.

New methods of seismic prospecting with the use of nonexplosive sources of compressional oscillations and modern digital instrument setups are being introduced. The materials are being processed on high-speed computers.

This year three structures have been readied. In all 42 of them have been turned over to the Turkmenneft' Association, which is quite enough for the exploratory drilling for petroleum and gas. However, they are being brought under drilling slowly, the construction of parametric wells is being drawn out for years.

During the last five-year plan four petroleum and gas deposits--the Keymir, the Eastern Cheleken, the Kara-Tepe and the Southern Bugdayli--major resources of raw materials for the chemical industry and of mineralized waters for public health and agriculture, were discovered at the sites readied by the expedition. Geological engineering studies were made in the zone of the future route of the Karakum Canal imeni V. I. Lenin.

We would like the number of programs for the processing of materials of the expedition to be increased more rapidly at the computer center of the Turkmen SSR Administration of Geology. This is one of the components which make the prediction of the structures more reliable.

The Drillers Open an Account (G. Bagdasarov)

No matter how enticing the preliminary appraisal of deep beds might be, only a well can give accurate data on their structure and content. For this reason great responsibility for the search for petroleum and gas rests with the drillers.

During the new five-year plan a large amount of exploratory and prospecting work has to be performed, as never before. It is planned to perform 760,000 m of development drilling. Its annual amount will increase from 85,000 m in 1980 to 160,000 m by the end of the five-year plan. Exploratory drilling will be launched at 20 sites.

The considerable strengthening of the material and technical base of drilling enterprises and the improvemen [illegible]e technology of sinking wells into sub-Krasnotsvet and Mesozoic deposits are envisaged. A considerable increase of the construction of capacities of the Turkmenneft' Association lies ahead. Much work on the attraction and attachment of personnel is necessary.

Without the solution of these important problems it will be difficult to overcome the lag in the exploration of new sites and to make an active search for reserves of petroleum and gas in promising, but for the present undeveloped regions. Some work was done in this direction during the past five-year plan: the Okarem Administration of Development Drilling and a mobile mechanized column for the construction of water mains and underground lines to the boreholes were created, and the construction of bases--the central pipe base and the base of production service of the 14 operating boreholes in Okarem--was begun. The Kamyshldzha-Bugdayli road, which will approach the sites where the bulk of the drilling is planned, is being laid. The Turkmenneftestroy Trust is constructing all these objects. However, the rate of the work is extremely slow.

The shortening of the period of construction of exploratory and development wells is an important reserve for increasing production efficiency. The socialist competition of the drilling brigades under the mottos "Not a Minute of Idle Time," "The Wells on Line," which will help to decrease the idle times and losses of working time, to increase labor productivity, to reduce the breakdowns and to improve the supply of drilling brigades, is now been launched with new energy. The work experience of the best collectives--the winners of the All-Union Socialist Competition, which the well-known experts of high-speed drilling A. Amanyazov, V. Sakhnov and R. Rustamov head--has been studied and is being disseminated.

During the years of the 10th Five-Year Plan, according to the data of the Turkmen Scientific Research and Planning Institute of the Petroleum Industry (TurkmenNIPIneft'), the efficiency of 1 hour of work in development drilling increased by 40 percent. This was achieved first of all by the more reliable strengthening of the columns and the use of strong pipe, highly productive bits like the AV, AN and GNU, vibrating screens and other advanced technology. The methods developed by the institute of predicting the formational pressure 150-200 m below the achieved bottom hole, the studies of wells by means of formational testers on the pipes (the KII) and the formulas for the processing of drilling muds with polymers and other additives are helping to avoid emergency situations and the freezing up of tools and to shorten the period of construction of wells.

Much is being done to improve the living conditions of the drillers. Nearly every brigade now has its own dining room, personal service complexes and dormitories have been built at the new sites, good conditions are being created for relaxation. Concern about the people is having a favorable influence on work: labor productivity is increasing, labor and production discipline are becoming stronger.

With the first months of the new five-year plan the drilling enterprises have begun to introduce advanced equipment and technology more persistently. Active preparation for the drilling of wells with an electric drill is under way in the leading Nebit-Dag Administration of Drilling Operations. For this the appropriate base is being set up, the drilling foremen are studying a matter that is new for them. The Erdekli deposit is being rapidly readied for operation.

This is the positive aspect of the matter. Unfortunately, there are also serious shortcomings in the organization of the drilling. They are the frequent idle times of the drilling brigades. The rate of work is being held up by the lack of water and electric power and by shortcomings in the development of the sites. The success of the search for new reserves of petroleum and gas and the subsequent fate of the petroleum industry of the republic depend in many ways on the prompt solution of these key problems.

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FUELS

PROGRESS IN LAYING URENGOY-PETROVSKY UNDERWATER PIPELINE REPORTED

Baku VYSHKA in Russian 12 Jun 81 p 2

[Article by O. Nechipurenko: "The First Kilometers Are Finished!"]

> [Text] At the end of May Central Television reported in its news program "Time" on initiation of the most important stage in construction of yet another artery of natural fuel connecting our country's European center with the Urengoy gas condensate deposit. Comrade L. I. Brezhnev referred to the need for hastening its development in his report to the 26th CPSU Congress. Pipelines are being laid along the bottom of Kuybyshevskoye Reservoir by marine engineers working for construction-installation administrations of the "Azmorneftestroy" and "Kaspmorneftegazstroy" trusts, and by the crews of "Kaspneftegazflot" vessels.
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> During the 10th Five-Year Plan they laid the four strands of the underwater pipeline here, extending from the Orenburg gas deposit. They did so with outstanding quality, and quickly. And last week the builders and seamen enjoyed yet another labor victory--8.5 kilometers of the new main were laid along the bottom of the reservoir.

An entire squadron of "Kaspneftegazflot" ships can be seen these days from the Zhigulevskiye Mountains. Not far from the young city of the motor vehicle builders, Tol'yatti, the tugboats "Kura" and "Dnestr", the crane ship "Uluchay", the diving boat "Urunos-4", and the passenger launch PSK-43 are working under the supervision of the flagship of the pipe layers, "Suleyman Vezirov".

Installers Rashid Balabekov and Lorik Ayrapetyan, welders Vladimir Nevert and Vladimir Samotuda, and other experienced craftsmen from Construction and Installation Administration No 4 of "Azmorneftestroy" Trust are assembling pipes with a diameter of 722 millimeters, clothed in concrete jackets in Baku, and carefully lowering them into submarine trenches dug by hydraulic dredges. They are being aided by unique equipment controlled by the crew of the pipelayer "Suleyman Vezirov". The possibility of waste is practically excluded in this case: Each length of pipe passes through five stations next to one another. At four of them, welders weld the seams, and at the fifth the quality of the welding is checked with a fault detector.

"In the very first days of work, a shock tempo was struck, and a competition was initiated between the shifts of seamen and builders," said Rafik Nabiyev, the "Suleyman Vezirov's" second mechanic, who had just flown in from Kuybyshev. "We are laying more than 40 pipes per day, and I am sure that this is not the limit."

The effort is being aided by experience accumulated previously by builders and seamen in the complex conditions offered by the bottom relief of the reservoir, the depth of which varies from 30 to 40 meters. One problem encountered in construction of the Orenburg gas pipeline was that it frequently passed close to shore, through shallow water. But this problem was solved through the joint efforts of the workers and engineers, and the resulting savings was hundreds of thousands of rubles. The main thing today is to ensure dependable work of the equipment.

An especially great deal of hard work had to be done to improve the pipe layer's main mechanism--a hydraulic-drive tightening device. Burdened by a load of 40 tons, it began leaking oil, which could have caused the system to fail at a most inappropriate moment. "Suleyman Vezirov" mechanics Mikhail Minnikov and Faik Mustafayev developed and installed a special sealing device that ensured the hydraulic system's dependable operation. I should mention that Faik Mustafayev has also assimilated the associated occupation of instrument mechanic. Most of the operating mechanisms of the "Suleyman Vezirov" are controlled by electronic digital circuits. And now he is able to successfully make the extremely complex repairs on these devices.

The crews of auxiliary vessels are also working well; this is especially true of the crew of the "Kura", which is leading the "Suleyman Vezirov" around under Captain Nikolay Abyzov's command. After every 50 meters of pipe are laid, the tug moves the pipe layer's 15-ton anchors, without wasting a single minute. In the first while, it was difficult to find them: The devices for securing the anchors to the tug were below the water line. Once again a worker's resourcefulness came to the rescue: A buoy was floated above each anchor.

It should be mentioned that excellently organized time off is also helping the marine engineers. Championships in chess, checkers, and table tennis were started in the Red Nook of the "Suleyman Vezirov" during the first days of duty on Kuybyshevskoye Reservoir. This is not to say, however, that everything went on without a hitch. The "Suleyman Vezirov" has a film viewing room and a projector, but someone forgot to bring movies from Baku. The crew of the hydraulic dredge, which came to this construction site from Odessa, came to the rescue of its neighbors.

Well organized food services help to keep the builders and seamen in a good mood. About 80 persons eat at the same time in two dining halls aboard the "Suleyman Vezirov", and specialists in Eastern dishes--chefs Rauf Abbasov, Eleonora Daniel'yan, and others--always try to keep everyone happy and full.

Eight 5-kilometer sections of pipeline are to be laid from one shore of the reservoir to the other by the end of November. This is twice more than was done in 1979. Moreover the work must be done in such a way that shipping on the great Russian river would not be interrupted for even a single hour. This means that pipes will have to be joined together several times in the middle of the sea with the help of jib cranes. Emissaries from Azerbaijan working on this project, one of the most important of the 11th Five-Year Plan, have decided to complete this assignment ahead of schedule.

Late one night, when the airwaves were relatively free, Nina Mikhaylovna Tsvetkova, radio operator of "Kaspneftegazflot", helped me get in touch with builders and seamen working on Kuybyshevskoye Reservoir by telegraph and congratulate them on their first successes. I asked how things were going now.

"We are still laying pipes. Today we laid 469 meters," answered Mamedaga Kazimov, the chief mate of the pipe layer.

I asked: "How much ahead of schedule do you think you will finish the project?"

In response I received a telegram signed by Mamedaga Kazimov and the chief engineer for construction, Oktay Mustafayev:

"To the VYSHKA editor: The entire building collective has pledged to complete the work of laying pipelines across Kuybyshevskoye Reservoir by the 64th anniversary of the Great October Socialist Revolution."

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FUELS

BRIEFS

COMPRESSED GAS FOR VEHICLES--The Kazakh SSR Council of Ministers has taken as a guiding principle and accepted for execution the decree of the USSR Council of Ministers "On the Use of Compressed Natural Gas as a Fuel for Motor Transport." The Kazakh SSR State Planning Committee, republic ministries and departments have been ordered to envisage in the annual plans for 1982-1985 the delivery of bottle-gas driven vehicles and gas cylinder equipment for reequipping vehicles to the enterprises and organizations located in the cities of Alma-Ata, Dzhambul and Chimkent, as well as the performance of work on the reequipment of vehicles like the ZIL and GAZ, which are in operation at the enterprises and organizations located in the indicated cities. The immediate changeover of all the vehicles of the indicated types, which operate in the city of Alma-Ata, to operation on compressed natural gas is called for. The Kazakh SSR State Committee for the Supply of Petroleum Products should, on the basis of the distribution of bottle-gas driven vehicles over the territory of the republic, specify the location of gas filling stations, having provided in so doing for the maximum utilization of the underground mains and networks of operating gasoline filling stations, and should ensure during 1982 and the first half of 1983 the construction of five gas filling stations, including two each in the cities of Alma-Ata and Chimkent and one in Dzhambul. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 14 Apr 81 p 3/ 7807

GAS TREATMENT BLOCKS--P. Goncharuk, secretary of the party bureau of the All-Union Scientific Research and Design Institute for Gas Treatment (VNIPIgazpererabotka) reported that the report "The Flares in the Fields Are Fading," which was published on 17 June 1980, was discussed in due time in all the subdivisions of the party bureaus of the shop organizations, as well as at the expanded meeting of the party bureau of the institute. The critical reproof made in this material concerning the fact that through the fault of the institute complete unit elements are being used inadequately when building gas treatment plants, was recognized as justified. In eliminating the shortcomings, in recent times the institute has specially designed for Western Siberian gas treatment plants large blocks with a capacity of 1 billion m^3 each--they are twofold larger in capacity than the ones built earlier. Owing to new installation and layout solutions it was possible to increase the efficiency of the development. The institute is continuing the search for new technical and technological solutions. However, the introduction of complete block units and the further industrialization of construction are possible, P. Goncharuk believes, only on the condition that all the technological equipment of gas treatment plants is produced in a complete block design. So far it has not been able to achieve this, the institute cannot solve the problems on its own. That is why the specialists of the VNIPIgazpererabotka are counting on the assistance of the design organizations of the Ministry of Chemical and Petroleum Machine Building, the Leningrad Nevskiy zavod Production Association, as well as other machine building enterprises, which are participating in the construction of the gas treatment plants of Siberia. /Text/ /Moscow PRAVDA in Russian 30 May 81 p 2/ 7807

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